

[DOCUMENT NAME] SPECIFICATION

[TITLE OF THE INVENTION] ELECTROMAGNETIC CONNECTING DEVICE FOR HIGH VOLTAGE AND LARGE CURRENT

[CLAIMS]

5 [CLAIM 1] An electromagnetic connector for high voltages and large currents, comprising a primary winding (12) connected to a high-voltage, large-current power supply (1), a secondary winding (14) connected to an electromagnetic forming coil (2), and a magnetic core (16) for guiding the magnetic flux produced by the primary winding, into the secondary winding, wherein

10 the magnetic core (16) comprises a primary core (16a) with a primary winding and a secondary core (16b) with a secondary winding,

the primary core and the secondary core are magnetically connected together by putting them in contact or in close proximity, and separated each other when the connector is disconnected.

15 [CLAIM 2] The electromagnetic connector for high voltages and large currents, specified in Claim 1, wherein the magnetic core (16) is a closed rectangle in shape, and the primary core (16a) and the secondary core (16b) comprise U-shaped structures produced from the rectangle by cutting the rectangle into two parts.

20 [CLAIM 3] The electromagnetic connector for high voltages and large currents specified in Claim 2, wherein the cut surfaces of both the U-shaped structures are in close contact with each other or located close to each other when connected, and can be configured to keep a space between them when they are disconnected.

25 the two parts cut as above can be in close contact with each other or located close to each other when connected, and can be configured to keep a space between them when they are disconnected.

[CLAIM 4] The electromagnetic connector for high voltages and large currents, specified in Claim 1, wherein the primary winding (12) and the secondary winding (14) are wound on each core (16a or 16b) in such a manner that both windings (12, 14)

overlap each other concentrically, when the connector is connected.

[CLAIM 5] The electromagnetic connector for high voltages and large currents, specified in Claim 1, wherein the magnetic core comprises silicon steel sheets, a ferrite material or an amorphous material.

5 [CLAIM 6] The electromagnetic connector for high voltages and large currents, specified in Claim 1, wherein the primary winding (12) and the secondary winding (14) are molded separately in a plastic resin.

#### [DETAILED DESCRIPTION OF THE INVENTION]

10 [0001]

#### [FIELD OF THE INVENTION]

The present invention relates to an electromagnetic connecting device for use with high voltages and large currents, which is detachable without using contacts.

[0002]

15 [PRIOR ART]

Conventionally, a tandem press or transfer press is used to manufacture 3-dimensionally formed components with rather complicated shapes, such as automobile bodies or door panels. However, there are some pressed shapes that cannot be easily pressed using a conventional tandem or transfer press.

20 For instance, when a component, some part of which has a complicated shape, e.g. the handle portion of a door panel is pressed and formed, the edge cannot be formed precisely even with a pressing process, and the shape cannot be accurately finished. Therefore, when a high quality is particularly required, 2 or 3 processes are required, and as a result, a plurality of sets of upper and lower dies are needed, and a 25 plurality of pressing processes must be provided, so that the production efficiency is low and the cost is high, which are practical problems.

In addition, there is a demand for aluminum material to be used to reduce the weight of a vehicle, however compared to steel sheets, aluminum has a large spring-